

Densities of coastal birds on a semi-remote coastline in south central Victoria

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Abstract

A one-off 18 km transect running from Kilcunda to Cape Patterson in south central Victoria was surveyed for coastal birds. This stretch of high-energy coastline has relatively few visitor access points. Eleven species of coastal birds were recorded using the coastline, ranging from the common Silver Gull *Larus novaehollandiae* through to species of conservation concern such as the Hooded Plover *Thinornis rubricollis* and Sooty Oystercatcher *Haematopus fuliginosus*. The density of Hooded Plovers was 0.89 birds/km and compares favourably with reported mean densities from other parts of mainland south-east Australia. This survey provides baseline density data for coastal birds for a relatively pristine stretch of coastline that is subject to development proposals such as water desalination plants and wind farms. (*The Victorian Naturalist* 126 (1), 2009, 23-26)

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Introduction

The varied coastline of Victoria provides habitat for a wide array of coastal bird species (Emison *et al.* 1987; LCC 1993). Because coastlines traditionally have been focal sites for industrial and residential development and recreational activities, many birds relying on these habitats have been disadvantaged. While a few species have remained relatively unaffected (e.g. Silver Gull *Larus novaehollandiae*), many, such as beach-nesting shorebirds, are experiencing declines along more densely settled portions of the coast (e.g. Marchant and Higgins 1993; Watkins 1993).

The Hooded Plover *Thinornis rubricollis* is a prime example of a resident beach-nesting shorebird that has declined and is now of conservation concern. Introduced predators, physical disturbance from pedestrian traffic, domestic animals and, in some states, off-road vehicles are regarded as being particularly serious threats to the species' breeding success and survival (Emison *et al.* 1987; Buick and Paton 1989; Marchant and Higgins 1993; Weston 2001). The south-eastern population of the Hooded Plover is classified as 'vulnerable' (Garnett and Crowley 2000). In Victoria, it also is classified as 'vulnerable' as well as being listed under Schedule 2 of the Flora and Fauna Guarantee Act 1988. It is believed that the Victorian population consists of 400-500 birds (Emison *et al.* 1987; Murlis 1989; DSE 2003; Birds Australia unpubl. data).

Annual surveys for the Hooded Plover are conducted along the Victorian coast by Birds Australia during November. However, these surveys tend to be focused only on the Hooded Plover, and estimates of densities of other coastal birds, with the exception of Oystercatchers *Haematopus* spp, are generally not recorded. This study contributes to current knowledge of the distribution and densities of coastal birds, including the threatened Hooded Plover, by reporting the results of a survey along a semi-remote stretch of coastline. Such surveys are valuable in terms of providing baseline data that can be used to monitor population trends through time or in response to specific threats or management actions. They also provide valuable inventory information that can be used to guide management of the coastline and feed into management databases such as the Oil Spill Response Atlas (Ehmke and Weston 2006).

Methods

Study site

Coastal birds were surveyed along an 18 km transect commencing just east of Kilcunda (145°28'56"E, 38°33'19"S) and ending at Cape Patterson (145°36'26"E, 38°40'40"S). The 18 km of surveyed coastline from Kilcunda to Cape Patterson lies within the Kilcunda-Harmer's Haven Coastal Reserve, which is managed by Parks Victoria. This linear reserve consists of the foreshore and is backed by tall, vegetated sand dunes that abut cleared agricultural land

on their landward margin. The width of the coastal vegetation varies from little more than 100 m in places to nearly two kilometres where the reserve joins the Wonthaggi Heathlands Nature Conservation Reserve.

The coastline consists of high energy ocean beaches of which approximately 4.5 km (25%) are fronted by rock platforms that are exposed during low tide. Major features along this stretch of coastline include the mouth of the Powlett River, the small coastal township of Harmer's Haven and a large rocky promontory, which is exposed at low tide, at Cape Patterson. There are 12 formal access points along this stretch of coastline; most consist of rough unsealed roads and have no facilities. The construction of a water desalination plant has been proposed along this stretch of coastline at Williamson's Beach, and a wind farm has been recently constructed behind the coastal dunes approximately 3 km south of the Powlett River mouth.

Survey

The survey was conducted on 30 December 2007 between 0800 and 1400 hours. Weather conditions remained fine and sunny throughout the survey. There was a light breeze and temperatures were between 30-35°C. Three observers walked the transect as a group and were spaced between the water's edge and the fore dunes. This method has been used successfully in the past and it ensures that shorebirds at all levels of the beach are likely to be detected (Antos 2003). The dune systems were not surveyed. Coastal bird species were recorded only if they were using the beach or rock platforms for foraging, roosting or moving short distances from place to place. Birds that were sighted well offshore or flying high above were excluded. Measures of density have been expressed as individuals per km for each species.

Results

Eleven species of coastal birds were recorded along the transect (Table 1). The most commonly encountered species was the Silver Gull *Larus novaehollandiae*, while some of the less common species included the Little Black Cormorant *Phalacrocorax sulcirostris*, Little Pied Cormorant *P. melanoleucos* and Masked Lapwing *Vanellus miles*.

Most species were recorded throughout the length of the transect with the exception of the flock of approximately 120 Crested Terns

Sterna bergii, which were roosting on a large rocky promontory at Cape Patterson that had been exposed by the falling tide. This site may be an important local roost for this species. All of the cormorant species, as well as the White-faced Heron *Egretta novaehollandiae*, Australian White Ibis *Threskiornis molucca* and Sooty Oystercatcher *Haematopus fuliginosus* were observed only along parts of the coast that were fronted by rocky platforms.

The threatened Hooded Plover was recorded all along the coast, with a count of 16 birds and an estimated density of 0.89 birds per km (Table 1). With the exception of one juvenile, all birds seen were adults. Two pairs of birds, including the pair with the juvenile bird, were foraging while the remainder were roosting on the upper section of the beach above the mean high water mark. The pair with the juvenile was foraging on a rocky platform that had been exposed by the receding tide.

Discussion

The surveyed stretch of coastline provided roosting and foraging habitat for a wide variety of coastal birds. Importantly, it supported several pairs of the threatened Hooded Plover and evidence of recent breeding was observed, based on the presence of a juvenile bird that was associating with a pair of adults.

The density of Hooded Plovers recorded along this stretch of coastline compared favourably with counts from other sections of coastline on mainland south-eastern Australia. Overall densities along the coast of Victoria, based on counts conducted on ocean beaches during November, are in the range of 0.5-0.6 birds/km (Weston 1993; 1995). In South Australia, an overall density of 0.46 birds/km was recorded, based on counts of 699 km of coastline during November (Natt and Weston 1995). Hooded Plover densities tend to be higher in Tasmania, ranging from 1.4 up to 6.6 birds/km (Schulz and Kristensen 1994; Bryant 2002).

Hooded Plovers have been counted along this stretch of coastline during November by Birds Australia volunteers for approximately 25 years. These counts have recorded densities as high as 1.44-1.83 birds/km (Birds Australia unpubl. data). The lower counts obtained by this study may be due partly to the fact that it was conducted well into the holiday season and on a Sunday, during fine weather when the beaches were experiencing their highest levels

Table 1. Birds recorded along an 18 km coastal transect from Kilcunda to Cape Patterson, Victoria.

Species		Number	Birds/km
Great Cormorant	<i>Phalacrocorax carbo</i>	10	0.56
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	3	0.17
Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>	4	0.22
White-faced Heron	<i>Egretta novaehollandiae</i>	6	0.33
Australian White Ibis	<i>Threskiornis molucca</i>	18	1.0
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	6	0.33
Hooded Plover	<i>Thinornis rubricollis</i>	16	0.89
Masked Lapwing	<i>Vanellus miles</i>	2	0.11
Pacific Gull	<i>Larus pacificus</i>	14	0.78
Silver Gull	<i>Larus novaehollandiae</i>	144	8.0
Crested Tern	<i>Sterna bergii</i>	120 (approx)	na

of use. Given that the transect was surveyed at the height of the breeding season, there is also a likelihood that birds may have been attending nests in the fore dunes, which were not surveyed. Birds also may have been foraging on the rock platforms, which were uncovered by low tide, where they are much more difficult to detect than on the beach. It is likely that higher counts would be obtained if the survey was conducted during autumn/winter when birds form flocks and group sizes are larger (Heislors and Weston 1993) and if the fore dune habitat was searched thoroughly.

Surprisingly, apart from the Hooded Plover, only three of the species recorded can be regarded as true coastal habitat specialists (Sooty Oystercatcher, Pacific Gull *Larus pacificus*, Crested Tern). All of the other species also are found frequently inland (Barrett *et al.* 2003). The relatively low numbers of Sooty Oystercatchers may be due to the fact that their preferred habitat of rock platforms and rocky headlands (Marchant and Higgins 1993) was not well represented along this stretch of coast (25% of the transect had sub-tidal rocky platforms). Nevertheless, the count of 0.33 birds/km falls within the range of averages obtained by annual counts (0.12-0.52 birds/km) for the coastline between San Remo and Darby Beach (Weston *et al.* 1995). The high numbers of Pacific Gulls recorded are probably indicative of the close proximity of the islands off Wilsons Promontory, which are the major breeding site in Victoria for this species (LCC 1993). The Crested Tern was observed at only one site, the rocky promontory off Cape Patterson. Given that well over 100 birds were observed roosting here, this might be an important local roosting site.

Surprisingly, a number of species was absent during the survey, including the Pied Oystercatcher *Haematopus longirostris*, Sanderling *Calidris alba*, Red-necked Stint *Calidris ruficapillus* and Red-capped Plover *Charadrius ruficapillus*, despite the presence of suitable habitat. This probably reflects the snapshot nature of the survey.

One of the greatest threats facing coastal birds, especially resident beach-nesting species, is the impact of human disturbance (e.g. Buick and Paton 1989; Dowling and Weston 1999; Weston and Elgar 2005; 2007). The coastline surveyed currently has 12 access points; however, only a few of these (e.g. near Kilcunda, Harmer's Haven and Cape Patterson) have fully developed facilities and host large numbers of visitors. All other access points are located at the ends of unsealed roads and lack facilities. Nevertheless, people and unrestrained dogs were observed at all but one of the access points. Activities most frequently conducted were fishing and general sightseeing. Illegal camping in the fore dunes also was observed at one location.

It is likely that recreational use of the coast will continue to increase. The coastline surveyed also has been earmarked for the development of a water desalination plant. It is hoped that this survey will provide a useful benchmark to land managers and researchers against which coastal bird densities can be compared in future in response to changing patterns of recreational use, management activities and infrastructure development. It has been demonstrated that, through careful management, populations of beach-nesting birds can be maintained in areas that experience high levels of recreational use (Dowling and Weston 1999). A range of strategies is currently being trialled by Birds Aus-

tralia with assistance from the Australian Government's Natural Heritage Trust to ensure that beach nesting bird numbers are maintained in the future (O'Connor and Weston 2007).

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Saproscincus mustelina. Photo by Raymond Hoser.